

G. R. S. IX-5]

Previous references.

1921.

( Ste )

Later references.

Ind. no. 10 of 21-22

File No. 89-21

Serial-Nos 1, 147-8, 80-11

## GENERAL AND REVENUE SECRETARIAT.

Serial Nos. 13

Part B for Jan 22.

### SUBJECT.

Leave to file a specification in respect of an invention for "Improvements in or relating to Catalytic materials adapted for use in the Synthesis of ammonia"

Sl. 7. No 3034 of 23.11.21 authorizing the Applicant to file a specification in respect of the invention referred to therein.

Sl. 9. No 3746 of 9.1.22 notifying the filing of the Specification stated therein.

( 27c )

File No. 59-21

Invention for "Improvements in or relating to catalytic materials adapted for use in the synthesis of ammonia"

Mr. W. G. ant. Ross. Solicitor. 2 Hastings Street  
Calcutta

Dated 26.7.21

Received 1-8-21

Diary No. 778

Enclos. / *10 copies of all copies*  
Spare Copies.  
*1 cc*

Serial No. /

Forward an application for leave to file a specification  
on behalf of his Clients L' Air Liquide Societe Anonyme  
Pour L' Etude Et L' Exploitation Des Procedes Georges  
Claude in respect of an invention for improvements  
in or relating to catalytic material adapted for  
use in the Synthesis of "Ammonia".

The amount of Rs 12/- refd to.

the letter was received in the Cash Section on 1.8.21.

Mr. Roke states that the present application is based on his client's Indian application no. 6278 of 20 filed on 28.9.20 but no Indian

Done  
nu  
11/8

Ind

May 7/44

Serial  
No.

7

To W. Grant Rose Esq. Calcutta

No 3034 of 23-11-21

Authorises the applicants to file the  
specification.

8.

From W. Grant Rose Esq.

Dated 10-12-21

Advise remittance of Rs 30/- for filing  
fee & request that the specification may be filed.  
Submitted with 3 drafts. The draft & fair copies  
of G.O. (H 7) require signature. T. R. R  
will be duly entered & submitted separately.

AUG.

27-12-21.

*hul*

A. Dine

S. Swaiter

8(a)

T. R. R. No. 469 of 6.1.22 acknowledging the receipt of  
Rs 30/- in the Huzar Ty.

9

No 3746 of 9.1.22 notifying the filing of the  
specification of the invention referred to above.

10

No 3750 of 9.1.22 to Mr. Grant Rose  
for sending a copy of the notification in 8(a).

11

Nos 3747-9 of 9.1.22 to The Secy. Govt. of Bengal,  
the Chief Eng. & the Secy. R.O. & C. Advice  
forwarding for record in their respective offices  
a copy of the specification stated therein.

Recd by reg post

100821-22

3569

Dis. 778 (u)  
82-8-22

From

Mr. W. Grant Rose  
Solicitor

2 Hastings Street  
Calcutta.

Mc. 59-21-1

GEN 2

21 AUG 1921

To

The Chief Secretary to the Government of  
His Highness the Maharaja of Mysore  
General and Revenue Secretariat  
Bangalore.

Calcutta 26th July 1921.

Sir,

I beg to enclose herewith the necessary papers in respect of an application for leave to file a Specification on behalf of my clients L'Air Liquide Societe Anonyme Pour L'Etude Et L'Exploitation Des Procédes Georges Claude in respect of an invention for "Improvements in or relating to catalytic material adapted for use in the syntheses of ammonia."

The following papers are enclosed herewith namely:-

- (1) Application in duplicate
- (2) Power of attorney
- (3) Assignment
- (4) Specification in duplicate.

I am sending you a money order for Rs.12/- of which Rs.1/- is for the Mysore Government Stamp on the Power of attorney and Rs.1/- for the Mysore Government Stamp on the assignment and Rs.10/- being the prescribed fee for the application.

I may mention that the present application is based on my clients Indian application No 6278 of 1920 filed on the

CUPON. The remitter may write here any communication to the payee.  
Rs. 12/- As. Amount remitted in respect of Patent  
application to Dewan of Mysore on behalf of L'Air  
Liquide etc corresponding to Indian Patent applica-  
-tion No 7049 of 1921. W. Grant. Rose, Solicitor  
202 ans 1/8 2 Hastings Street, Calcutta Remitter.

6

Duplicate.

1. No. 422
2. Date of Remittance. 15/8/21
3. From whom received. Mr W. Grant  
Roe, Solicitor, 2 Hastings  
Street Calcutta
4. Date of receipt of amount in the General  
and Revenue Secretariat. 1.8.21
5. On what account. Appn Fee in respect  
of Am. in Vention No 10 of 21-2
6. Amount (in figures and words) Ten rupees  
only. Rs 10/-
7. The head to which it should be credited.

(To be filled in by the Treasury.)


  
*M. S. S. S. S.*  
 Secretary to Government,  
 General Department.  
 The above amount has been duly received  
 and credited in the Treasury on this date.

Date \_\_\_\_\_

*Hd. Acctt.      Treasurer.      Try. Officer.*

*N. B.*—Both the counterfoil and the duplicate to be returned to the General and Revenue Secretariat duly signed by the Treasury Department.

G. R. S. VI—G/32]

SUBJECT

Diary No. of letter replied to

General and Revenue Secretariat

, the

191

Date of issue

Signed by

To

Mr. Grant Rose Esq.  
Solicitor, 2 Hastings  
Street Calcutta.  
Sir,

I am directed to acknowledge  
the receipt of your letter of 26.7  
forwarding a sum of Rs 12/-  
in respect of an application  
for leave to file a specification  
in respect of <sup>an</sup> invention for  
improvements in or relating  
to catalytic material  
over.

drafted for use in the Syntheses  
 of "aun monia" and to State  
 that <sup>the sum of</sup> half a rupee is returned  
 herewith since the assignment  
 order <sup>under refd</sup> will be impressed with  
 a stamp of the value of eight annas  
 & to add that the application  
~~under~~ is receiving the attention  
 of Govt.

I have etc

23 Nov 1887  
 11/8  
 For Secy to Govt  
 E. D. B.

The receipt of your letter of 23rd  
 Nov 1887 is acknowledged and the  
 same is being dealt with in the  
 office of the Secy to Govt.  
 The receipt of your letter of 23rd  
 Nov 1887 is acknowledged and the  
 same is being dealt with in the  
 office of the Secy to Govt.

List of enclosures.

Copied by

Examined by

DRAFT.

SUBJECT.....

Diary No. of letter replied to.....

GENERAL AND REVENUE SECRETARIAT,

, the.....191 .

Date of issue.....26/8/21

Signed by.....Mr. M. S. R.

Section. 2 e

File No. 59-21

Serial No.

No. 1281/Eues 2 3

To

The Secy. Bd of R. Adm.

Bangalore

Has the honor to forward herewith

for report under Sec. 6, Cl. (2) of the

Mysore Inventions and Designs Regula-

tion, XI of 1894, an application for leave

to file a specification of an invention for

"Improvements in or relating

to catalytic material

adapted for use in the syntheses  
of ammonia" received from

By Order,

M. S. R.

For Secretary to Government.

Encl.

Mr. W. Grant Rose Solicitor  
2 Hastings Street Calcutta  
on behalf of his clients  
L' Air Liquide Societe  
Anonyme Pour L' Etude  
Et L' Exploitation Des  
Procedes Georges Claude.

11/8  
ml

*[Faint handwritten notes, possibly "The ..."]*

*[Faint handwritten notes, possibly "The ..."]*

*List of enclosures.*

*[Faint handwritten notes, possibly "The ..."]*

*Copied by.....*

*Examined by.....*

DRAFT.

SUBJECT.....

Diary No. of letter replied to.....

GENERAL AND REVENUE SECRETARIAT

, the ..... 191

Date of issue..... 26/8/11

Signed by..... Mr. M. S. R.

\* L'Air Liquide, Societe  
Anonyme pour l'Etude Et  
L'Exploitation des Procédés Georges  
Claude 248 Rue St Lazare, Paris

\* Georges Claude 248 Rue St Lazare  
Paris

by Georges Claude in favour of  
the Company refd to above is  
forwarded with half a rupee &  
roughly impressed with the  
stamp of that value & returned.

Section. 24  
File No. 59-21  
Serial No. 4

No 1282/Encl 24  
Rs 1-8-0

To

The Supdt of Stamps.  
Bangalore

Has the honor to forward herewith a  
Power of Attorney executed by.....

constituting Mr. H. Grant Rose, Solicitor  
at Hastings Street, Calcutta  
as Agents in respect of <sup>his</sup> their invention

for..... Improvements in or relating  
to Catalytic material adapted  
for use in the synthesis of ammonia by  
and to request that the same may be im-  
pressed with the Mysore General Stamp  
of the value of Rupee One, also herewith  
forwarded, and the Power returned to  
this office. Also a deed of assignment

By Order,

M. S. R.

For Chief Secretary to Government.

Concept  
M. S. R.

26  
12 p.

Jan 10 1912  
12 p.

x.

Handwritten notes, mostly illegible.

Handwritten notes, mostly illegible.

Handwritten notes, mostly illegible.

Handwritten notes, mostly illegible.

Handwritten notes, mostly illegible.

Handwritten notes, mostly illegible.

Copied by.....

Examined by.....

10-21  
J 4c 59-21-5  
(12)

Copy of letter No. 86 dated 31st August 1921 from the  
Superintendent of Stamps in Mysore, Bangalore to the Secretary to  
Government, General Department.

-----

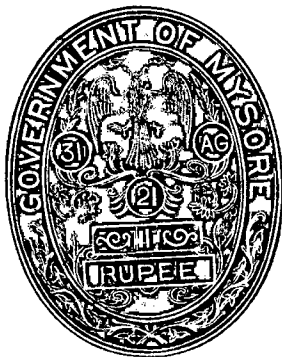
I have the honour to forward herewith duly stamped eight Powers of  
Attorney and eight Deeds of Assignment, forwarded with your ~~own~~ number  
noted in the margin and to request the favour of an acknowledgment.  
No. 1266, 1270, 1272, 1275, 1279, 1282, 1285, 1287. dated the 26th August 1921

*Acknowledged vide no 1553 of 6-9-21*

.....

62754/1522

193

POWER OF ATTORNEY.

IN THE MATTER of the Inventions and Designs Regulation, 1894, of the Government of Mysore and in the matter of L'AIR LIQUIDE, SOCIETE ANONYME POUR L'ETUDE ET L'EXPLOITATION DES PROCEDES GEORGES CLAUDE, of 48, Rue St Lazare, Paris, in the Republic of France.

We, the abovenamed, L'AIR LIQUIDE, SOCIETE ANONYME POUR L'ETUDE ET L'EXPLOITATION DES PROCEDES GEORGES CLAUDE, do hereby retain, constitute and appoint *William Grant Rose of N<sup>o</sup> 2 Hastings Street in the Town of Calcutta* Solicitor and Patent Agent as our Agent and Attorney to apply for and obtain from the Government of Mysore and keep in force an Exclusive Privilege or Letters Patent for "Improvements in or relating to catalytic materials adapted for use in the synthesis of ammonia" and we authorise *him* to sign our name to such papers and writings and do such acts regarding the same, including the appointment of a substitute or substitutes, as may be necessary or expedient.

Dated this *9th* day of *April* 1920.

THE COMMON SEAL of L'AIR LIQUIDE, SOCIETE ANONYME POUR L'ETUDE ET L'EXPLOITATION DES PROCEDES GEORGES CLAUDE was hereto affixed in the presence of:-

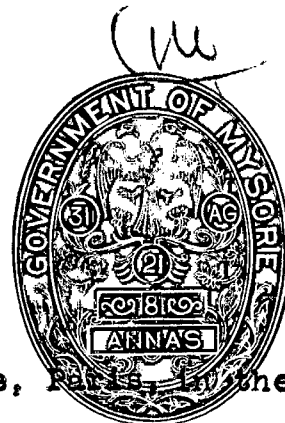


L'AIR LIQUIDE  
Societe Anonyme pour l'Etude et l'Exploitation des Procédés G. C. Claude  
Un Directeur

*Representative*



62784/1520

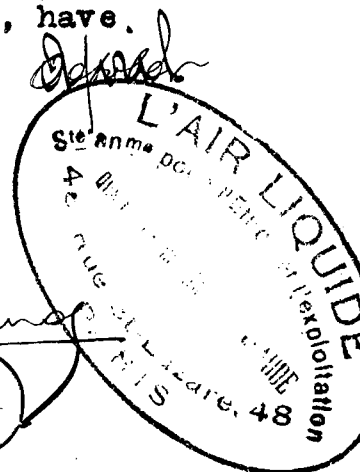


# A S S I G N M E N T.

WHEREAS I, GEORGES CLAUDE, of 48, Rue St Lazare, Paris, in the Republic of France, Engineer, am in possession of an Invention for "Improvements in or relating to catalytic materials adapted for use in the synthesis of ammonia"

Now therefore know ye that for and in consideration of the sum of five shillings to me in hand paid, the receipt of which is hereby acknowledged, I the said GEORGES CLAUDE, have assigned and transferred and by these presents do assign and transfer unto L'AIR LIQUIDE, SOCIETE ANONYME POUR L'ETUDE ET L'EXPLOITATION DES PROCEDES GEORGES CLAUDE, of 48, Rue St Lazare, Paris, in the Republic of France, their successors or Assigns, (hereinafter called "the said Assignee") the whole right, title and interest in and to Letters Patent to be obtained for the said Invention from the Government of Mysore the same to be held and enjoyed by the said Assignee to the end of the term or period for which such Letters Patent may be granted, or any prolongation or extension thereof, as fully and entirely as the same could have been held and enjoyed by me had this Assignment not been made.

IN WITNESS whereof I, the said GEORGES CLAUDE, have hereunto set my hand and seal this 22<sup>nd</sup> day of October 1920.



SIGNED, SEALED AND DELIVERED

at Paris

in the presence of:-

René Hourlier, Engineer at L'air Liquide,  
residing on Boulevard de la Seine 3 Rue Alfred Laurant,  
Gaston Scala Engineer at L'air Liquide  
residing in Paris 19 Rue Baron

94c 59-21-6 (15)

copy of ltr no 18 of 29-10-21 from the Secretary  
to Govt, Bd of the advice to the Secretary to Govt, G.O. Dept.

I am directed to return herewith the  
following 9 applications & to state that leave may  
be granted to file the specification of inventions  
contained therein.

1 x x x

10-21 8. Catalytic materials adapted for use in  
the synthesis of ammonia.

9 x x x

A P P L I C A T I O N .

TO THE DEWAN OF MYSORE.

THE APPLICATION of L'AIR LIQUIDE,  
SOCIETE ANONYME POUR L'ETUDE ET  
L'EXPLOITATION DES PROCEDES GEORGES  
CLAUDE, of 48, Rue St Lazare, Paris,  
in the Republic of France, for leave  
to file a Specification under Part 1  
of the Mysore Inventions and Designs  
Regulation, 1894.

1. The Applicants are in possession of an Invention for  
"Improvements in or relating to catalytic materials adapted  
for use in the synthesis of ammonia"  
they are the Assignees of the Inventor  
thereof; and, to the best of their information and belief, the  
Invention is new within the meaning of Part I of the Inven-  
tions and Designs Regulation, 1894, and no circumstance exists  
which, if the Applicants are authorised to file a specification  
and file it in accordance with that Part, will disentitle  
them to an Exclusive Privilege thereunder in respect of the  
Invention.

The Applicants have applied for a Patent in British India  
in respect of this Invention No. 6278 dated the 28th day of  
September, 1920.

2. The following is a description of the Invention:-

a composition in ammonia of 0.01 to 0.1 or 0.2, the body obtained by melting a stick of this oxide under the combined action of a blowpipe and a jet of oxygen furnishes generally under the same conditions of pressure, yield and temperature compositions reaching 10 to 15 per cent. But even with very pure reacting gases the life or active condition of this catalyser is very short the composition in ammonia falling in a few hours to half its original value.

In carrying the invention into effect the following method is preferably adopted:-

The oxide of iron mixed with molten iron, which flows from a bar of iron under the action of a jet of oxygen is collected in a magnesia crucible. When a sufficient quantity, some kilograms for example, has been collected a jet of oxygen is directed on the still molten matter which jet is sufficiently intense to cause an energetic stirring up of the whole mass. An enormous increase of temperature is produced both in consequence of the combustion of the metallic iron and through the peroxidation of the oxide. This increase of temperature is such that a relatively large proportion of the magnesia of the crucible is dissolved in the liquid, this also involving on the other hand the necessity of employing a very highly refractory material such as magnesia. The substance thus obtained when cast on a sheet of iron, constitutes an excellent catalyser for the manufacture of ammonia, giving under a pressure of 1,000 atmospheres and a temperature of 600° C. and with considerable volumes of the order of 100 litres per hour per cubic centimeter of catalyser, compositions

✓ of 25 to 30 per cent of ammonia, corresponding to a combination of 40 to 50 per cent of the reacting gases.

However the life of the material is still short, the proportionate compositions obtained still falling to half of their value in 10 to 15 hours for example for a length of catalyser material of 10 centimeters in the reaction tube.

It is found that the above method of operation involves by reason of the enormous temperature obtained and of the energetic stirring a very powerful and unexpected means for dissolving under the liquid state into the oxide of iron, even bodies of the most refractory nature.

It has been found particularly advantageous to add lime. If 5 to 10 per cent of lime is added by successive increments in the crucible while the latter is being filled with molten oxide of iron and a jet of oxygen of large cross section is projected on the fused material with sufficient velocity to bring about a strong stirring action, the lime is rapidly dissolved, sometimes with considerable swelling. The peroxidation ✓ should be carried all the further according as the metal contains noxious impurities and should be arrested thereupon

HAVING NOW particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, we declare that what we claim is:-

1. A method of preparing a catalytic material adapted for use in the synthetic manufacture of ammonia which consists in directing a jet of oxygen on to molten monoxide of iron.

2. A method of preparing a catalytic material adapted for use in the synthetic manufacture of ammonia which consists in directing a jet of oxygen on to molten monoxide of iron to which lime is added.

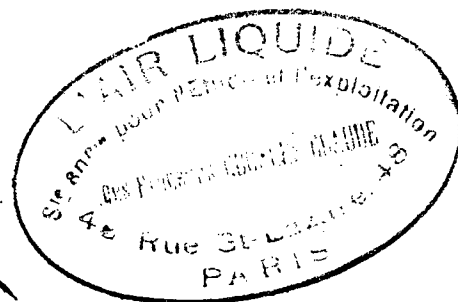
3. A method of preparing a catalytic material adapted for use in the synthetic manufacture of ammonia which consists in melting heated iron by means of a jet of oxygen, collecting the resulting molten material in a crucible preferably of magnesia and directing a jet of oxygen thereon while stirring the molten mass preferably by means of the oxygen jet.

4. A method of preparing a catalytic material adapted for use in the synthetic manufacture of ammonia which consists in melting heated iron by means of a jet of oxygen, collecting the resulting molten material in a crucible preferably of magnesia and adding lime, eventually adding a small proportion of alkaline oxide and directing a jet of oxygen on to the molten material, stirring the molten mass preferably by means of the oxygen jet, and stopping the operation when the surface of the mass begins to congeal or eventually in case the raw material contains no prejudicial impurities, when the mass is completely liquid.

(24)

3. The Applicants, therefore, apply for leave to file a Specification of the Invention pursuant to Part I of the Inventions and Designs Regulation, 1894.

THE COMMON SEAL of L'AIR LIQUIDE SOCIETE ANONYME POUR L'ETUDE ET L'EXPLOITATION DES PROCEDES GEORGES CLAUDE was hereto affixed in the presence of:-



"L'AIR LIQUIDE"  
Société Anonyme pour l'étude et l'exploitation des procédés G. Claude  
Un Directeur  
*[Signature]*

We, the Applicants abovenamed, do declare that the facts stated in this Application are true to our knowledge, except as to matters stated on information and belief, and as to those matters we believe them to be true.

Dated this 22<sup>nd</sup> day of April 1921.

THE COMMON SEAL of L'AIR LIQUIDE, SOCIETE ANONYME POUR L'ETUDE ET L'EXPLOITATION DES PROCEDES GEORGES CLAUDE was hereto affixed in the presence of:-



"L'AIR LIQUIDE"  
Société Anonyme pour l'étude et l'exploitation des procédés G. Claude  
Un Directeur  
*[Signature]*

al  
G. R. S.VI—s.-v/21]

No BC 3034 / 9 + c 59-21-7 (25)  
Government of Mysore.  
GENERAL DEPARTMENT.

Register No. 10 of 1921-22

Bangalore, the 23/11/1921.

WHEREAS an application, dated the 22nd of Feb. 1921, and received on the 1st August 1921, has been submitted under Section 5 of the Mysore Inventions and Designs Regulation, 1894, by *Lein Liquide, Preite, Anonyme pour l'Etude et l'Exploitation des Procédes Georges Claude, of 48, Rue St-Lazare, Paris* (hereinafter referred to as "the applicant") for leave to file a specification of an invention for *Improvements in or relating to catalytic materials adapted for use in the synthesis of ammonia*

And whereas the applicant has duly complied with all the requirements of Section 5 of the said Regulation;

The Government of Mysore are pleased, under Section 6 of the said Regulation, to authorize the applicant to file a specification of the said invention in accordance with the provisions of the said Regulation.

ORDERED, that the applicant be, and he is hereby, informed accordingly.

By Order of the Government of Mysore,

*uk*  
7/11  
For Secretary to the Govt. of Mysore,  
Asst General Department.

Certified that the fees prescribed in the fourth schedule to the Mysore Inventions and Designs Regulation, 1894, in respect of the application for leave to file the said specification and of the filing thereof have been paid by the applicant, and that the specification hereinbefore described has been duly filed in accordance with the provisions of Section 8 of the said Regulation on this the 16th day of December 1921.

*Recd No 3750  
Issued 10/12/21*

*M appannu*  
For Secretary to the Govt. of Mysore,  
General Department.

26

*(Section 8 of the Inventions and Designs Regulation, 1894.)*

8. (1) If within six months from the date of an order under Section 6, Sub-Section (1), or within such further time, not exceeding three months, as the Government of Mysore, in its discretion, may, on cause shown to its satisfaction and on payment of the fee prescribed in that behalf in the fourth schedule, see fit to allow; the applicant causes a specification of his invention to be filed in manner by this Part required, and the fee prescribed in the fourth schedule in respect of the filing of the specification to be paid, the applicant shall, subject to the other provisions of this Part, be entitled to the exclusive privilege of making, selling and using the invention in the Territories of Mysore, and of authorizing others so to do, for a term of fourteen years from the date of the filing of the specification.

(2) But an exclusive privilege in respect of an invention of a new manufacture shall, notwithstanding anything in Sub-Section (1), cease, if the inventor fails to pay, within the time limited in that behalf by the fourth schedule, any fee prescribed in that schedule in respect of the continuance of the privilege.

(3) If, nevertheless, in any case, by accident, mistake, or inadvertence, an inventor fails to pay any such fee within the time so limited, he may apply to the Government of Mysore for an enlargement of the time for making the payment.

(4) Thereupon the Government of Mysore may enlarge the time accordingly, on payment of the fee prescribed in that behalf in the fourth schedule, and subject to the following conditions, namely :—

- (a) the time for making a payment shall not in any case be enlarged for more than three months; and
- (b) if any suit is instituted in respect of an infringement of the exclusive privilege committed after a failure to make a payment within the time limited for the making thereof and before the enlargement of that time, the Court disposing of the suit may, if it thinks fit, refuse to award or give any damages in respect of the infringement.

27/928

RECEIVED  
14 DEC 1921

14 DEC 1921

From

Mr. W. Grant Rose

Solicitor

No. 2 Hastings Street, Calcutta.

To

The Chief Secretary to the Government of

His Highness The Maharajah of Mysore,

General Department

Bangalore, Mysore.

Calcutta 10th December 1921/22

Sir,

Patent Register No. 10 of 1921/22

16/12  
With reference to your letter No. I C 3036/I & C 60-21-9 dated the 23rd ultimo forwarding the Government Order granting leave to file specification in respect of the application of L'Air Liquide & Co being Register No. 10 of 1921/22 I beg to enclose herewith under Registered cover two copies of the specification in respect of such application which together with the two copies of specification already submitted with the application will make four copies thereof and I beg that the same may be filed in terms of the order granting leave.

I also beg to enclose herewith the Government order No. I C 3034/I & C 59-21-7 Register No. 10 of 1921/22 dated the 23rd November 1921 so that the certificate at foot thereof certifying that the specification has been filed and the fees paid may be duly signed and the order thus completed returned to me.

I am remitting by money order Rs 30 being the prescribed fee for filing the specification herein.

27936  
M. N. N.  
(27)  
File 59-21-8

10-21

(29)

ITE 59-21-81<sup>9</sup> no 2936.

Duplicate.

(To be returned to the General and Revenue Secretariat for being placed in the file.)

1. No. 469
2. Date of Remittance 6-1-22
3. From whom received Mr W Grant  
Rohr, Calcutta
4. Date of receipt of amount in the General and Revenue Secretariat 16-12-21
5. On what account Filing fee in  
respect of Survey no 10 of 1921-22
6. Amount (in figures and words) Rs 30/-  
Rupees thirty only
7. The head to which it should be credited.

(To be filled in by the Treasury.)

M. Appamannur  
Secretary to Government,  
General Department.

The above amount has been duly received  
and credited in the Treasury on this date.

Date

6/1/22

Hd. Acctt.

Treasurer.

Try. Officer.

N. B.—Both the counterfoil and the duplicate to be  
returned to the General and Revenue Secretariat  
duly signed by the Treasury Department.

No. LC3746

## NOTIFICATION.

(PATENT)

The following specification of an invention has been filed in accordance with Sections 8, 9, 10 and 11 of Regulation XI of 1894 (The inventions and Designs Regulations) and is open to inspection at the Mysore Government Secretariat on application to the Chief Secretary to the Government of His Highness the Maharaja of Mysore, and on payment of a fee of one Rupee.

By L'Air Liquide, Société Anonyme pour l'Étude  
et l'Exploitation des Procédés Georges Claude, of  
48, Rue St Lazare, Paris.

"Improvements in or relating to catalytic materials adapted for use in the synthesis of ammonia."

By Order,

~~To Chief~~ Secretary to Government,  
Glasgow

To

The Compiler, Mysore Gazette, for publication.

10-21  
31  
3  
DRAFT.

SUBJECT.....

No.

Diary No. of letter replied to.....

Section. 94c  
File No. 59-21.  
Serial No. 10

GENERAL AND REVENUE SECRETARIAT

( )  
, the.....191

To

ho LC 3750/ue  
W. Grant Rose Esq.

Solicitor

Date of issue..... 9/4/22

No. 2, Hastings Street, Calcutta.

Signed by..... Mr S. H. A.

Sir,

With reference to your letter dated

10-12-21, I am directed to for-

ward copy of a Notification No. LC 3746  
dated 9-1-22 ~~21~~ 59-21-9

issued by this Government in regard to  
the invention filed by you under Regula-  
tion XI of 1894 (The Inventions and

Designs Regulations.) and to request that  
the same may be communicated to the  
party concerned.

The order granting permission to file  
specification is herewith returned, with  
the certificate at foot, duly filled in and  
signed.

I have, etc.,

27/12/21  
For Secretary to Government, Calcutta.

4/1/22

*List of enclosures.*

*Copied by.....*

*Examined by.....*

.....

**Serial No. 11**

No. LC 3747-9 (Encl  
to each

To

- (1) The Asst. Govt. Museum
- (2) The Chief Engineer of Mysore
- (3) The Secy. Bd. of Fe. Advise.

9/1/22

Mr S. H. A

Has the house to forward —

herewith for record in his office copy  
of a specification of an invention for  
"Improvements in or relating to  
catalytic materials adapted for  
use in the synthesis of ammonia"  
by L'Air Liquide, Société Anonyme  
pour l'Étude et l'Exploitation des  
procédés Georges Claude, of 48, Rue  
St Lazare, Paris

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but

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*List of enclosures.*

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*Examined by*

This invention relates to catalytic materials adapted for use in the synthesis of ammonia.

When the fusion of a bar of iron or of ordinary steel, previously brought up to white heat, is effected by means of a jet of oxygen delivered preferably through a tube of large diameter, the oxide flowing therefrom is accompanied by a high proportion of molten iron. If the liquid is collected in an iron or magnesia crucible and is subsequently poured on to a plate of metal the pasty iron remains at the bottom of the crucible and the molten liquid is exclusively composed of oxide of iron. It has generally been supposed (see for example French Patent No. 429686 of May 13th 1911) that the body thus obtained in a highly oxidising atmosphere was the oxide of iron  $\text{Fe}_3\text{O}_4$ ; it has been ascertained however that it is essentially the oxide  $\text{FeO}$  with very little of  $\text{Fe}_3\text{O}_4$ .

According to this invention it is however possible to obtain by the direct action of oxygen, an oxide higher in oxygen and approximating more closely to  $\text{Fe}_3\text{O}_4$ . According to the present invention a jet of oxygen is directed on the aforesaid oxide while it is still fused thereby causing a considerable rise of temperature obviously due to the combination of further oxygen with the oxide.

The facts set forth above are of great importance in connection with the synthetic manufacture of ammonia by the action of catalysers upon a mixture of one volume of nitrogen with three volumes of hydrogen, preferably hyper-compressed and heated to about 500 to 700° C. according to (British) Patent (No. 130086.) While the above first mentioned material is a very bad catalyser yielding in general with pressures of the order of 1,000 atmospheres

of 25 to 30 per cent of ammonia, corresponding to a combination of 40 to 50 per cent of the reacting gases.

However the life of the material is still short, the proportionate compositions obtained still falling to half of their value in 10 to 15 hours for example for a length of catalyser material of 10 centimeters in the reaction tube.

It is found that the above method of operation involves by reason of the enormous temperature obtained and of the energetic stirring a very powerful and unexpected means for dissolving under the liquid state into the oxide of iron, even bodies of the most refractory nature.

It has been found particularly advantageous to add lime. If 5 to 10 per cent of lime is added by successive increments in the crucible while the latter is being filled with molten oxide of iron and a jet of oxygen of large cross section is projected on the fused material with sufficient velocity to bring about a strong stirring action, the lime is rapidly dissolved, sometimes with considerable swelling. The peroxidation should be carried all the further according as the metal contains noxious impurities and should be arrested thereupon

HAVING NOW particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, we declare that what we claim is:-

1. A method of preparing a catalytic material adapted for use in the synthetic manufacture of ammonia which consists in directing a jet of oxygen on to molten monoxide of iron.

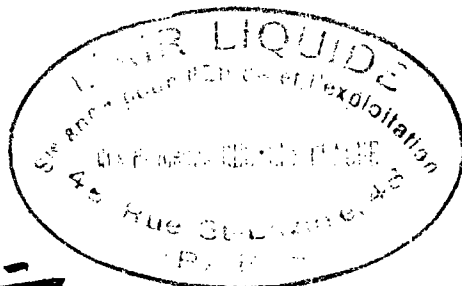
2. A method of preparing a catalytic material adapted for use in the synthetic manufacture of ammonia which consists in directing a jet of oxygen on to molten monoxide of iron to which lime is added.

3. A method of preparing a catalytic material adapted for use in the synthetic manufacture of ammonia which consists in melting heated iron by means of a jet of oxygen, collecting the resulting molten material in a crucible preferably of magnesia and directing a jet of oxygen thereon while stirring the molten mass preferably by means of the oxygen jet.

4. A method of preparing a catalytic material adapted for use in the synthetic manufacture of ammonia which consists in melting heated iron by means of a jet of oxygen, collecting the resulting molten material in a crucible preferably of magnesia and adding lime, eventually adding a small proportion of alkaline oxide and directing a jet of oxygen on to the molten material, stirring the molten mass preferably by means of the oxygen jet, and stopping the operation when the surface of the mass begins to congeal or eventually in case the raw material contains no prejudicial impurities, when the mass is completely liquid.

3. The Applicants, therefore, apply for leave to file a Specification of the Invention pursuant to Part I of the Inventions and Designs Regulation, 1894.

THE COMMON SEAL of L'AIR LIQUIDE SOCIETE ANONYME POUR L'ETUDE ET L'EXPLOITATION DES PROCEDES GEORGES CLAUDE was hereto affixed in the presence of:-



"L'AIR LIQUIDE"  
Société Anonyme pour l'étude et l'exploitation des procédés Georges Claude  
Un Directeur.

We, the Applicants abovenamed, do declare that the facts stated in this Application are true to our knowledge, except as to matters stated on information and belief, and as to those matters we believe them to be true.

Dated this 22<sup>nd</sup> day of April 1921.

THE COMMON SEAL of L'AIR LIQUIDE, SOCIETE ANONYME POUR L'ETUDE ET L'EXPLOITATION DES PROCEDES GEORGES CLAUDE was hereto affixed in the presence of:-



"L'AIR LIQUIDE"  
Société Anonyme pour l'étude et l'exploitation des procédés Georges Claude  
Un Directeur.

*Georges Claude*